

Notice of Allowability

Application No.

10/759,333

Examiner

Victor J. Taylor

Applicant(s)

CHEN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/20/2006.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.181

1. Applicant's petition for reconsideration of the abandonment under 37 CFR 1.181 was granted on 5/29/2007 and, therefore, the abandonment of 4/05/2007 is withdrawn.

Drawings

2. The drawings were received on 5/29/2007. These drawings are approved.

Response to Arguments

3. Applicant's arguments, see the amendment and corrected drawings, filed 5/29/2007, with respect to the objections to the drawings have been fully considered and are persuasive. The objection to the drawings of 3/10/2006 is moot has been withdrawn.
4. Applicant's arguments see the amendments and arguments, filed 8/10/2006, with respect to the objection to the specification concerning sensor data measured along the drill string while drilling the borehole have been fully considered and are persuasive. The objection to the specification of 3/10/2006 has been withdrawn.
5. Applicant's arguments see the amendment and argument, filed 8/10/2006, with respect to the calculation of the dynamic critical value of an operator adjustable operational parameter have been fully considered and are persuasive. The 102 (b) rejection of 3/10/2006 is moot and has been withdrawn.

Allowable Subject Matter

6. Claims 1-18 are allowed.

7. The following is an examiner's statement of reasons for allowance:

The processes for controlling the BHA assembly and producing a calculation of the dynamic critical values of operational parameters obtained from the dynamic operational parameter sensor data during the operation of the logging while drilling and using the analysis and the calculations of the dynamic critical values for the operational parameters of the BHA and using these calculations for controlling the operational parameters and the rotation of a bottom hole drilling operation while drilling is not found in the cited art of record.

I. Wherein Claim 1

A method of controlling a drilling operation involving rotation of a bottom hole drilling assembly carried by a drill string with steps for "obtaining sensor data regarding at least one dynamic operational parameter of bottom hole assembly...[and] with the particular claimed steps for "performing analysis of the sensor data to calculate at least one dynamic critical value of an operator adjustable operational parameter of the bottom hole assembly...[and] with the step of "presenting to an operator a display of the value of the operator adjustable operational parameter over time along with the value of at least one dynamic critical value of the operator adjustable operational parameter" used to control the drill string operation and the rotation of the BHA in the borehole is not found in the cited art of record and is allowable over the cited art of record.

It is these arguments of record for the claim limitations and the limitations expressed in each of these claims that are not found, taught, or suggested in the prior art of record, that makes these claims allowable over the prior art.

As to dependent claims 2-6, which are variously dependent on the allowed independent claim 1 and are allowed at least for the reasons cited above.

II. Wherein Claim 4 provides for an apparatus for carrying out a drilling operation involving the rotation of a bottom hole drilling assembly carried by a drill string, wherein "a sensor for obtaining sensor data regarding at least one dynamic operational parameter of said bottom hole assembly...[and] combined with the explicit claimed analysis for "a dynamics analysis application for performing analysis of the sensor data and calculating at least one dynamic critical value of an operator adjustable operational parameter of the bottom hole assembly"...[and] combined with "a display for presenting to an operator the real time value of the operator adjustable operational parameter over time along with the value for at least one dynamic critical value of said operator adjustable operational parameter to provide for the operation of the drilling is not found in the cited art of record and is allowable over the cited art of record.

It is these arguments of record for the claim limitations and the limitations expressed in each of these claims that are not found, taught, or suggested in the prior art of record, that makes these claims allowable over the prior art.

As to dependent claims 8-11, which are dependent on the allowed independent claim 7 and are allowed at least for the reasons cited above.

III. Wherein Claim 13 provides for the system for controlling a drilling operation involving rotation of a bottom hole drilling assembly carried by a drill string, wherein "a sensor for obtaining the sensor data regarding at least one dynamic operational parameter of the bottom hole assembly"...[is/and] in combination with the particular

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claimed steps for "a dynamics analysis application for performing analysis of the sensor data and calculating at least one dynamic critical value of an operator adjustable operational parameter of the bottom hole assembly"...[and] with a display for presenting to an operator the value of the operator adjustable operational parameter over time along with the real-time value of at least one dynamic critical value of the operator adjustable operational parameter" to provide for controlling of the drill string in the borehole is not found in the cited art of record and is allowable over the cited art of record.

It is these arguments of record for the claim limitations and the limitations expressed in each of these claims that are not found, taught, or suggested in the prior art of record, that makes these claims allowable over the prior art.

As to dependent claims 14-18 variously dependent on the allowed independent claim 13 and are allowed at least for the reasons cited above.

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor J. Taylor whose telephone number is 571-272-2281. The examiner can normally be reached on 8:00 to 5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on 571-272-2863. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

V. J. Taylor
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7/28/2007.